Effects of Vitamin E in Non Alcoholic Fatty Liver Disease

Background

Nonalcoholic fatty liver disease(NAFLD) is a common liver disease that can progress to cirrhosis and account for about one third of cases of chronic liver disease. There is a strong association of NAFLD with insulin resistance and the metabolic syndrome. Macrosteatosis followed by oxidative stress explains the pathophysiology of NAFLD and disease progression. Currently there is no established treatment for this disease.

Vitamin E being an antioxidant helps in decreasing the oxidative stress and has been evaluated for use in NAFLD.

Objective

To determine the changes in the grade of fatty infiltration of liver in ultra sonogram and changes in liver enzymes supplemented with vitamin E.

Methods

Single centre, prospective, open label, single arm study conducted for a period of 12 weeks ,conducted at Medicine outpatient department, Government Stanley Medical College and Hospital, Chennai-1

Patients attending OPD with any of the features of the metabolic syndrome were screened for non alcoholic fatty liver disease by means of detailed medical

history, drug history, alcohol intake, clinical examination followed by ultrasonogram imaging and biochemical tests.

A total of 60 patients were placed in a single arm and were given capsule vitamin E 600 mg orally once daily for a period of 12 weeks along with the drugs that participant is already taking for type 2 diabetes mellitus, hypertension and dyslipidemia.

The primary outcome measure was the change in grade of fatty infiltration of liver in ultrasonogram at the end of 12 weeks of treatment with vitamin E. Other outcome measures are changes in liver size by ultrasonogram, changes in liver enzymes, lipid profile.

Results

Treatment with vitamin E resulted in a significant decrease in grades of liver echogenicity ($p<0.05$) and decrease in liver size ($p<0.05$). At baseline elevation in AST and ALT levels were less than 2 times of normal values. The AST : ALT levels is less than 1, suggesting mild disease. At the end of 12 weeks serum AST and ALT levels showed significant reduction($p< 0.05$). Results also showed a significant reduction in lipid profile values of total cholesterol, LDL, Triglyceride levels at the end of study ($p<0.05$). There was no significant changes in BMI, waist circumference and body weight. Vitamin E therapy was associated with only few mild adverse effects.

Conclusion

Vitamin E an anti oxidant, membrane stabiliser, adjuvant hypolipidemic drug, is a well tolerated effective pharmacotherapeutic agent for Non Alcoholic Fatty Liver Disease with lesser adverse events.

Keywords

Nonalcoholic fatty liver disease(NAFLD), insulin resistance, metabolic syndrome, Macrosteatosis , oxidative stress, antioxidant, Vitamin E, liver echogenicity, liver enzymes.